

F. Hank Grant

Curriculum Vitae

Personal Data

Citizenship	USA
Birth Date	September 13, 1949
Birthplace	Henderson, KY
Marital Status	Married
Health	Excellent
Addresses	University of Oklahoma Center for the Study of Wireless EMC 100 W. Boyd Suite R208 Norman, OK 73019 (405)325-2429

Professional History

1996-Present	University of Oklahoma	Director, Center for the Study of Wireless Electromagnetic Compatibility Dougan Professor of Engineering
1993-1996	University of Oklahoma	Director, School of Industrial Engineering and Southwestern Bell Professor Founder, Center for the Study of Wireless Electromagnetic Compatibility
1991-1993	National Science Foundation	Program Director, Operations Research and Computer Integrated Engineering, Division of Design and Mfg. Systems
1990-1991	Hewlett Packard	Director, Measurement and Manufacturing Systems Laboratory
1989-1990	Pritsker Corporation	Executive Vice President and CFO
1985-1989	FACTROL, Inc.	President and Founder
1983-1985	Pritsker and Assoc.	Director
1981-1983	University of Evansville	Associate Professor
1975-1981	Pritsker and Assoc.	Vice President

F. Hank Grant

Education

Industrial Engineering	B.S.I.E.	Purdue University	1973
Industrial Engineering	M.S.I.E.	Purdue University	1977
Industrial Engineering	Ph.D.	Purdue University	1980

Research Interests

Wireless Electromagnetic Compatibility
Domain Specific Simulation Languages
Simulation and Virtual Reality
Biomedical Manufacturing
Order Scheduling and Promising

Research Projects/Grants

"The Development and Implementation of Operation Research and Industrial Engineering Algorithms on Workstations for Application in Manufacturing," National Science Foundation SBIR Program, Phase I Grant, \$50,000, 1981-1982.

"The Development and Implementation of Operation Research and Industrial Engineering Algorithms on Workstations for Application in Manufacturing," National Science Foundation SBIR Program, Phase II Grant, \$250,000, 1982-1985.

"The Development of Factory Floor Scheduling Tools," Indiana Corporation for Science and Technology, \$300,000, 1985-1987.

"The Development of the Scheduler's Tool Kit for Schedule Management," Indiana Corporation for Science and Technology, \$400,000, 1987-1989.

"Automatic Adaptive Scheduling of Processing in Multimachine Cells," National Science Foundation SBIR Program, \$50,000, Phase I Grant, 1988.

"An Integrated Curriculum for Integrated Manufacturing," National Science Foundation, \$200,000, June, 1995.

"In Vitro Study of the Interaction between Pacemakers and Cellular Phones," Cellular Technology Industry Association, \$140,000, 1994.

"Research on the Interaction between Hearing Aids and Cellular Phones," Cellular Technology Industry Association, \$100,000, 1995.

I/UCRC Planning Grant, Wireless EMC Center, National Science Foundation, \$15,000, 1995.

"In Vitro Study of the Interaction Between Implantable Cardioverter Defibrillators," Industry Consortium (Ventritex, Guidant, Medtronic, Intermedics), \$47,500, 1997.

F. Hank Grant

“Characteristics of Digital Wireless Telecom Technologies for Use in Determining EMC of Affected Electronic Systems,” American Automotive Manufacturers Association, \$17,000, June, 1997.

I/UCRC Center Grant, Wireless EMC Center, National Science Foundation, \$330,000, 1997.

“Interaction Between Wireless Phones and Insulin Infusion Pumps,” MiniMed Inc., \$34,000, 1998.

“Advanced Implantable Cardioverter Defibrillator Wireless Interaction Study,” Ventritex, Inc., \$30,000, 1998.

“Modification of CDMA Wireless Phone Software to Decrease Hearing Aid Interference, CDMA Development Group , \$24,000, 1998.

“Interaction Study of Proprietary Phone Technology with Pacemakers and Implantable Cardioverter Dibrillators,” \$20,000, 1998.

“Development of a Resource Manual for Hospitals Concerning the Management of Wireless Technology,” Cellular Technology Industry Association, \$24,000, 1998.

“Development of a Short Course in the Management of Wireless Technology in Hospitals,” Cellular Technology Industry Association, \$20,000, 1998.

“Development of a Standard Protocol for the Testing of Interaction Between Wireless Phones and Implantable Infusion Pumps,” \$14,500, 1999.

“Development of a Standard Protocol for the Testing of the Interaction Between Wireless Phones and Electronic Toys,” Microsoft, \$10,500, 1999.

“Investigation of the Interaction Between Wireless Two Way Pagers and Hospital Medical Equipment in Consideration of ANSI Standard 63.18”, Motorola, Inc., \$10,000, 1999.

“Investigation of the Interaction Resistant Capabilities in a New Design for Implantable Cardioverter Dibrillators in Conjunction with Wireless Phones,” Ventritex, Inc. , \$24,000, 1999.

“Testing of the Interaction of ICD’s with Wireless Phones,” St. Jude Medical, \$17,000, 1999.

“Development of a Research Agenda for Biomedical Manufacturing”, National Science Foundation, DMI-9909874, \$49,450, 1999.

“Design of a Protocol for External Infusion Pump Interaction Evaluation with RF link Patient Operated Controller,” MiniMed, \$29,100, 1999.

F. Hank Grant

“Validation of the ANSI C63.19 Standard for Predicting Usability of Wireless Phones with Hearing Aids,” Industry Consortium (Ericsson, Siemens, Nokia, Cellular Technology Industry Association, and Qualcomm), \$50,000, 1998-1999.

“Real Time Response for Authority Domain Operating on a Build to Order Mode,” Phase I, National Science Foundation, DMI0075714, \$129,641, 2000, (with S. Moses, S. Pulat, L, Greenwald.)

“Spurious Emissions of Wireless Technology and the Potential Effects on Avionics,” FAA, \$35,000, 2000.

“Design Considerations Regarding EMI in an Implantable Insulin Infusion Pump,” Medical Research Group, \$10,000, 2000.

“Evaluation of Modifications to an Implantable Neural Stimulator,” 2001,\$42,000.

“Spurious Emissions Measurements Protocols in Aircraft Avionics,” NASA, \$86,000, 2001.

“Development of Protocol for Interaction Evaluation for Neural Stimulators,” Cometrics, \$40,000, 2001.

“Real Time Promising for Authority Domains Operating in a Build to Order Mode,” Phase II, National Science Foundation, DMI0111082, \$499,781, (with S. Moses, S. Pulat, and L. Gruenwald), 2001.

I/UCRC Center Grant-Renewal, Wireless EMC Center, National Science Foundation, \$175,000, 2002.

“Development of a Protocol for Investigating the Interaction Between Cellular Phones and Neural Stimulators,” Cyperonics, Inc., \$3,695, 2002.

“Investigation of the Interaction between an Explosives Detection Device and Implantable Pacemakers and Defibrillators,” Quantum Magnetics, \$57,900, 2002.

Industry Consortium Funding for the Center for the Study of Electromagnetic Compatibility:

Center Funding 1994-1995: \$250,000

Center Funding 1995-1996: \$450,000

Center Funding 1996-1997: \$600,000

Center Funding 1997-1998: \$642,000

Center funding 1998-1999: \$742,000

Center Funding 1999-2000: \$650,000

Center Funding 2000-2001: \$650,000

Center Funding 2001-2002: \$450,000

F. Hank Grant

Center Funding 2002-2003 \$300,000
Center Funding 2003-2004 \$400,000 (projected)
Total Funding Through June, 2003: \$ 5,834,000 (Projected)

Current Center Funded Projects (2004):

- EMI Risk Evaluation at Gas Stations
- Aircraft Avionics and Cell Phone Interaction Risks
- Cell Site Towers and effects of Pacemakers
- Validation of C63.19 Study regarding Hearing Aid Compatibility

F. Hank Grant

Professional Affiliations

The Society for Computer Simulation
Computer and Automated Systems Association of SME
INFORMS
Institute of Industrial Engineers
Tau Beta Pi
The Institute of American Entrepreneurs
1988 Entrepreneur of the Year in High Technology

University Service

Co-Chair, Campus Technology Development Liaison Committee
Technology Development Liaison, Engineering
Graduate Committee Co-chair, Industrial Engineering
Radiation Safety Committee, University Wide Committee

Recent Professional Service Activity

Member, Technical Committee on Manufacturing Modeling
Management & Control (M3C), IFAC

Associate Editor, Journal of Manufacturing Systems

Member, AAMI Electromagnetic Compatibility Committee

Board Member, Academic Coalition for Integrated Manufacturing
Systems (A-CIMS), IMS Program, Dept. of Commerce

Member AAMI/FDA Electromagnetic Compatibility Committee on Implantable Devices

Member, C-63 ANSI Standards Committee on Medical Devices

Advisor, United States Antarctic External Panel for Program Review
Logistics and risk analysis activities supported successful funding of new station at the
South Pole, construction begun in 1999.

Reviewer, Engineering Research Center Proposals, 1997, National Science Foundation

Editorial Board, Production and Inventory Control Handbook, Third Edition

Member, Council of Industrial Engineering Academic Department Heads (CIEADH),
1993-1996

Reviewer, Unsolicited Research Proposals, 1993-2000, National Science Foundation

Workshop Participant, Program Design, Research Issues and Opportunities in Scalable
Enterprise Systems, April, 1999, National Science Foundation

F. Hank Grant

Modeling Methodology Track Coordinator, Winter Simulation Conference, Washington, DC, December, 2001.

F. Hank Grant

Current Professional Committees

Member, Technical Committee on Manufacturing Modeling, Management, & Control (M³C), IFAC

Associate Editor, Journal of Manufacturing Systems

Member, AAMI Electromagnetic Compatibility Committee

Board Member, Academic Coalition for Integrated Manufacturing Systems (A-CIMS), IMS Program, Dept. of Commerce

Member AAMI/FDA Electromagnetic Compatibility Committee

Editorial Board Member, IIE Transactions on Operations Engineering

Member, C63 ANSI Standards Parent Committee on Medical Instrumentation

Advisor, United States Antarctic External Program Review Panel
Logistics Analysis for New South Pole Station Construction Program
Risk Analysis of Current South Pole Station System Failure

Member, Board of Directors, Global Wireless Education Consortium

Recent Awards

Dugan Professor of Engineering, 2001

Outstanding Industrial Engineer, Purdue University, 2001.

Fellow, Institute of Industrial Engineers, May, 2000.

Samuel Roberts Noble Presidential Professor, 1997-2001

Top 20 Research Scientists, University of Oklahoma, 1996-2001

Best Poster Award, "Electromagnetic Compatibility and Medical Devices," AAMI/FDA Electromagnetic Compatibility/Electromagnetic Interference Conference, June, 1997, Washington, DC.

Outstanding Manuscript Award (with Schlegel and Fry), 1999, Association for the Advancement of Medical Instrumentation (AAMI).

F. Hank Grant

Teaching and Instruction Program Development

Support and supervise 10+ graduate students participating in the Wireless EMC Center. Also, support undergraduate research experience through work in the Wireless EMC Center and REU supplements through NSF.

Developed new undergraduate course (IE 3253) focused on Introduction to IE Systems Study and Modeling. Prerequisite for all IE modeling courses. Focus is on the characteristics and analysis of systems typically encountered by IE's. Uses multimedia presentation and in class computer lab.

Developed new graduate seminar (IE 6663) in advanced simulation topics including animation and simulation language development. Designed to be primarily a PhD seminar for students in simulation.

Developed (with Shiva Raman) the Manufacturing Research and Teaching Laboratory. Used for undergraduate instruction as well as graduate research.

Developing new joint graduate and undergraduate program in Wireless EMC to provide more engineers to the Wireless Industry. Undergraduate program will link students to the EMC Center and a planned teaching laboratory. Graduate program will serve students currently working in Industry. Implementation planned from 2000 through 2002.

Established EMC Center and University of Oklahoma as the 3rd University member of the GWEC, a consortium funded by the Wireless Industry to support the production of wireless engineers. Serving on Board of Directors of the GWEC.

Hobbies

These include a strong interest in music performance, composition and production. Other interests include musical instrument construction (18th century pianos and Harpsichords, dulcimers, guitars), flying, soaring, skydiving (retired), digital electronic recording (home studio) , banjo, racket sports, running, and biking.

F. Hank Grant

Professional Experience Summary

1996-Present University of Oklahoma

Director, Center for the Study of Wireless Electromagnetic Compatibility and Dougan Professor of Engineering. Responsibilities include all aspects of the operation of the Center including research projects, membership recruiting, and funding. Also active Professor in the School of Industrial Engineering including teaching, committees and research. Research projects outside of the EMC Center include research concerning the use of Virtual Reality in Simulation Modeling and the investigation of research requirements for biomedical manufacturing.

1993-1996 University of Oklahoma

Director, School of Industrial Engineering and Southwestern Bell Professor. Responsibilities include all aspects of the management of the School of Industrial Engineering, teaching undergraduate and graduate courses, and the development of research programs.

Founder, Center for the Study of Wireless Electromagnetic Compatibility. Responsible for the establishment and all aspect of the operation of the Center. The objective of the Center is to provide the following services: Industry Sponsored Research, Education, Consultation, Test and Evaluation, Standards and Clearinghouse for Information on Electromagnetic Compatibility Issues. Sponsored by industrial partners, including Southwestern Bell Mobile Systems, Motorola, AT&T, and McCaw. Industry focus areas are the interaction of Wireless Technology with Medical, Automotive, and Aviation Technology. The Center is performing a national level study on the interaction between pacemakers and cellular phones and reached national attention through a Forum held in Dallas in September linking the wireless and medical industries.

1991-1993 National Science Foundation

Program Manager for the Operations Research and Computer Integrated Engineering Programs in the Design and Manufacturing Systems Division. The responsibilities focus on the management of research programs in these areas. Funding responsibilities were approximately \$25 million per year. The CIE program includes research in process planning, design for manufacturability, assembly, service, and concurrent design. The main objective of the program is to form a bridge between design and manufacturing. The Operations Research program includes research in analytic and computational methods for the modeling, analysis, design, and optimization of natural and man-made systems. Topics include optimization, scheduling, routing, location, simulation, queueing theory and stochastic processes. In addition to standard unsolicited proposals in these areas, responsibilities also include special initiatives such as Strategic Manufacturing, Faculty Internships in Industry, and Research Results Transfer to Industry Through Teaching. The research programs are focused on funding Universities in the US.

Additional responsibilities include serving as chairman of the Task Force on Quality in Engineering Education. The goal of this task force is to identify appropriate

F. Hank Grant

roles for NSF in Quality in Engineering Education and to identify a set of action items for accomplishing these roles.

While at NSF, participated in an extensive analysis effort concerning the science station at the south pole. The analysis included failure cost projections for maintaining the existing station and logistics analysis for the most effective method of materials delivery and station construction. Results of the analysis lead to congress funding the new station construction at \$180 million over 5 years.

1990-1991 Hewlett Packard

Director of the Measurement and Manufacturing Research Lab at HP Laboratories, managing approximately 50 professional researchers, primarily PhD's, with an annual budget of over \$8.5 million. Responsibilities included the direction of HP research program in manufacturing focused on providing the vision for manufacturing in the 5 to 10 year time frame. Also included was the development of the measurement systems architecture and its delivery to the company. Projects included focus not only on strategy and direction, but also the delivery of software prototypes for commercialization by the company. Specific projects were:

- Test and Measurement System Executives
- Decision Support Technology
- Planning and Control Systems
- High Precision Robotics
- Manufacturing Systems Modeling
- Design Support Systems
- Design for Manufacturability Systems
- DFM Advisors for Sheet Metal, Electronics, and Plastics

1989-1990 Pritsker Corporation

After the merger of FACTROL into Pritsker Corporation, responsibilities included all administrative activities as well as the establishment of controls and procedures needed to support the companies new size and growth plans. Involved in various aspects of product development and remained active in products formerly from FACTROL. Member of the Board of Directors of Pritsker Corporation and was Treasurer of the Corporation.

1985-1989 FACTROL, Inc.

President and Founder of FACTROL, Inc. and had responsibility for all aspects of corporate operation. Instrumental in achieving growth at a rate exceeding 100% per year until its merger with Pritsker Corporation in 1989. While at FACTROL, maintained an active product research and development program, obtaining funding from the National Science Foundation and the Indiana Corporation for Science Foundation and the Indiana Corporation for Science and Technology to support higher risk research efforts. These development activities consistently resulted in key products to support the growth goals of the corporation. These efforts at FACTROL earned the Arthur Young/Venture Entrepreneur of the Year Award in High Technology for 1988.

F. Hank Grant

1983-1985 Pritsker & Associates, Inc.

Responsibilities focused on the development of advanced techniques for Shop Floor Control. This included the use of microcomputers to support the management of manufacturing systems as well as use of microcomputers as engineering workstations. Planned FACTROL, Inc. which was spun off as a separate corporation in 1985. This involved market research, product definition, development of a business plan, fund raising/venture capital, and product development.

1981-1983 University of Evansville

Associate Professor in the School of Business at the University of Evansville. Focused on teaching courses in various aspects of Operations Research and Simulation at the undergraduate as well as the graduate level. Also active in research and publication.

1975-1981 Pritsker & Associates, Inc.

Vice-president and member of the Board of Directors of Pritsker & Associates. Involved in all aspects of corporate administration and management. Primary responsibilities were in the government contracting area as well as involvement in industrial consulting activities. Participated in the development of simulation methodologies including Q-GERT, GASP, and SLAM languages and directed the development of the SNAP simulation language. Selected consulting activities and research projects included the following:

- The development of a procedure for the allocation of voting machines to precincts (Federal Election Commission).
- The development and application of SNAP, a specialized simulation technique for the analysis of safeguards at nuclear facilities (Sandia Laboratories, the Nuclear Regulatory Commission, and the U.S. Navy).
- The modeling and analysis of aluminum hot rolling mills to evaluate computer control alternatives (Alcoa).
- The modeling and analysis of aluminum hot rolling mills to evaluate computer control alternatives (Alcoa).
- The modeling and analysis of autobucking system in a saw mill (Weyerhaeuser).
- The modeling and analysis of human operator performance in air defense systems (Army Research Institute).

F. Hank Grant

Refereed Papers

"Reducing Voter Waiting Time," *Interfaces*, Vol.10, No.5, October 1980, pp.19-25.

"Hybrid Variance Reduction Techniques using Antithetic Sampling, Control Variates, and Stratified Sampling," *Computers and Industrial Engineering*," March, 1982.

"On the Efficiency of the Antithetic Variates Method for Simulating Stochastic Networks," *Management Science*, Vol. 29, No. 3, March, 1983.

"SNAP/SOS: An Integrated Capability for the Simulation and Analysis of Safeguards Systems," *Simulation*, August, 1983.

"Variance Reduction Techniques in Stochastic Shortest Route Analysis: Application Procedures and Results," *Mathematics and Computers in Simulation*, August, 1983.

"Material Flow Evaluation in Robotics Systems using Simulation," *Robotics and Material Flow*, edited by S.Y. Nof, October 1984.

"Computer Simulation in Scheduling and Loading Manufacturing Systems," *Production and Inventory Control Handbook*, Second Edition, Edited by J. Greene, 1987.

"Simulation in Designing and Scheduling Manufacturing Systems," *Design and Analysis of Integrated Manufacturing Systems*, National Academy Press, 1988.

"Adaptive/Predictive Scheduling: Review and a General Framework" *International Journal of Production Planning and Control*, 1991, Vol. 2, No. 4, 298-312 (with S.Y. Nof).

"Technology for Enterprise Integration: The Role of Computer Simulation," *New Directions in Simulation for Manufacturing and Communications*, Tokyo, Japan, Aug 1-2, 1994 (with A. Jones and J. Polito)

"A Study of the Potential for Manufacturing Research Collaboration Between American and European Academic Research Units," *Proceedings of the Third Industrial Engineering Research Council*, May 1994.(with C. Moodie)

"In Vitro Study of the Interaction of Cellular Phones with Cardiac Pacemakers, proceedings of Electromagnetics, Health Care and Health, IEEE Workshop and Symposium, Montreal, September 1995. (with S. Raman, R. Schlegel, A. Ravindran, and A. Badiru)

"Pacemaker - Cellular Phone Interaction Research," *Proceedings of the State of the Science Colloquium, International Committee on Wireless Communication Health Research*, WTR, Rome, Italy, 1995.

F. Hank Grant

“EMI to Hearing Aids from Wireless Phones,” ITEM Update, 1996 (with R.E. Schlegel and A. Ravindran).

“Interference to Hearing Aids from Wireless Phones - Clinical Results,” Hearing Journal, February, 1997. (with A. Ravindran, R. Schlegel, P. Matthews, and P. Scates)

“Wireless Phone - Hearing Aid EMC Research at the University of Oklahoma,” Journal of the American Academy of Audiology, July 1997. (with R.E. Schlegel, A. Ravindran, and S. Raman)

“Interaction Testing Between Wireless Phones and Implantable Cardioverter Defibrillators,” Proceedings of the IEEE Engineering in Medicine and Biology Society, October, 1997. (with R.E. Schlegel)

“Wireless Phones and Cardiac Pacemakers: In Vitro Interaction Study,” Proceedings of the IEEE Engineering in Medicine and Biology Society, October, 1997, (with R.E. Schlegel).

“Curriculum for Integrating Manufacturing Enterprise Decisions,” Proceedings of the ASEE Annual Conference, 1526-1,14, Milwaukee, WI, June, 1997. (with S. Raman, D. Pratt, B. Foote, A. Badiru, and A. Kamath)

“Determining Hearing Aid-Wireless Phone EMC,” Item Update, 1997, pp 87-92. (with R. Schlegel and S. Raman)

“Electromagnetic Compatibility and Medical devices,” Biomedical Instrumentation and Technology, 31(6), 570-573, November/December, 1997.

“Interaction Testing Between Wireless Phones and Implantable Cardioverter Defibrillators,” Proceedings of the 19th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, October, 1997. (with R. Schlegel)

“Wireless Phones and Cardiac Pacemakers: In Vitro Interaction Study,” Proceedings of the 19th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, October, 1997. (with R. Schlegel)

“Study Measures Interference to Hearing Aids from Digital Phones,” The Hearing Journal, 50(2), 32-34, February, 1997. (with A. Ravindran, R. Schlegel, P. Matthews, and P. Scates).

“Electromagnetic Compatibility Study of the In-Vitro Interaction of Wireless Phones with Cardiac Pacemakers,” Biomedical Instrumentation and Technology, Volume 32, November/December, 1998, pp 645-655 (with R. Schlegel, S. Raman, and D. Reynolds).

“Planar Separation Effects: Pacemakers and Wireless Phones,” Medical Device & Diagnostic Industry, 20(9), 64-70, September 1998. (with R. Schlegel).

F. Hank Grant

“Clinical Assessment of Electromagnetic Compatibility of Hearing Aids,” Proceedings of the Human Factors and Ergonomics Society 42nd Meeting, October, 1998. (with R. Schlegel, R. Shehab, S. Srinivasan, and S. Raman)

“Simulation Modeling with Artificial Reality Technology (SMART): An Integration of Virtual Reality and Simulation Modeling,” Proceeding of the Winter Simulation Conference, Washington, DC, 1998, (with Chuen-Ki Lai).

“Modular Software for Integrated Manufacturing Education,” International Journal of Agile Manufacturing, Vol. 2, Issue 1, 1999 (with R. Bhutta, S. Raman, S. Pulat, M. Court and J. Dechert).

“Predicting Speech Intelligibility for Hearing Aid Users in the Presence of Digital wireless Phone Interference,” Proceedings of the Human Factors and Ergonomics Society/HFES2000, July, 2000, (with T. Fry, R. Schlegel, and R. Shehab.)

“Clinical validation of the ANSI C63.19 Draft Standard for Measuring Compatibility Between Digital wireless Phones and Hearing Aids,” Proceedings of the Human factors and Ergonomics Society/HFES2000, July, 2000, (with R. Schlegel and T. Fry.)

“Effects of an Increased Air gap on the In Vitro Interaction of Wireless Phones with Cardiac Pacemakers,” Bioelectromagnetics 21:485-490, 2000, (with R. Schlegel).

“Modeling the Electromagnetic Response of Hearing Aids to Digital Wireless Phones,” IEEE EMC Transactions, Vol. 42, No. 4, November, 2000, (with R. Schlegel).

“Impact of CDMA Wireless Phone Power Output and Puncture Rate on Hearing Aid Interference Levels,” Biomedical Instrumentation and Technology, January/February, 2000 (Outstanding Manuscript Award, Association for the Advancement of Medical Instrumentation (AAMI), 1999), (with T. Fry and R.E. Schlegel).

“Wireless Phone - Hearing Aid EMC Research at the University of Oklahoma,” Journal of the American Academy of Audiology, 12:301-308, 2001, (with R. Schlegel, A. Ravindran, and S. Raman).

“Wireless EMC Center Research Concerning Medical Applications:Review of Research and the Impact on EMI Risk,” Wireless EMC Society Symposium, August, 2001, Montreal. (with G. Kuriger and D. Heirman).

“Biomanufacturing”, IIE Research Conference, May, 2002. (with Traci Harmann).

F. Hank Grant

“Using Simulation To Evaluate Buffer Adjustment Methods In Order Promising”, Winter Simulation Conference, San Diego, December 8-11, 2002. (with S. Moses and D. Goldsman.)

“Wireless EMC in the Medical Industry”, IEEE EMC Symposium, Minneapolis, August 19-23, 2002 (with D. Heirman and G. Kuriger).

“Investigation of Spurious Emissions from Cellular Phones and the Effect on Aircraft Navigation Equipment,” IEEE Transaction on Electromagnetic Compatibility, May, 2003, (with A. Cartwright, G. Kuriger, and D. Heirman).

“Survey of Issues in Biomanufacturing Research,” IIE Transactions, Accepted for Publication. (with T. Hartman and S. Settles).

“Real-time due-date promising by build-to-order environments”, *International Journal of Production Research*, In Review (with S. Moses, L. Gruenwald, and S. Pulat).

“Evaluation of Interaction Possibilities between Base Station Transmission Sites and Implantable Medical Devices”, *Biomedical Instrumentation and Technology*, Accepted for Publication, (with G. Kuriger, D. Heirman, M. Ravindran.)

“*In Vitro* Study of the Electromagnetic Interaction between Wireless Phones and an Implantable Neural Stimulator”, *Bioelectromagnetics*, Accepted for Publication. (with G. Kuriger, D. Heirman, M. Ravindran.)

“Real-time due-date promising by build-to-order environments”, accepted April 2004 for publication in *International Journal of Production Research*. (with Scott Moses, Le Gruenwald, and Simin Pulat)

“Evaluation of Electromagnetic Interaction Possibilities between Base Station Transmission Sites and Gas Stations”, *Bioelectromagnetics*, In Review. (with G. Kuriger, D. Heirman, M. Ravindran.)

“In Vitro study of the Electromagnetic Interactions between Implantable Medical Devices and The NQR Wand System”, In Progress, (with G. Kuriger and M. Ravindran)

Book Chapters

“Chapter 13. Scheduling Techniques,” (Chapter Contributor), *Production and Inventory Control Handbook*, Third Edition, James Greene, Editor, McGraw Hill, 1998.

“Chapter 36. Simulation,” *Production and Inventory Control Handbook*, Third Edition, James Greene, Editor, McGraw Hill, 1998.

“Simulation Tools for Manufacturing,” *CRC Handbook of Mechanical Engineering*, CRC Press, Frank Kreith, Editor-in-Chief, 1998.

F. Hank Grant

Selected Conference Papers, Open Literature Publications and Significant Presentations

"Simulation of Electroplating Process," Presented at the 1975 Summer Computer Simulation Conference, San Francisco, July 20-23, 1975 (with A. Alan B. Pritsker).

"New Directions in Simulation," Presented at the 1978 ORSA/TIMS Conference, May 1978 (with A. Alan B. Pritsker).

"A Network Modeling and Analysis Technique for the Evaluation of Nuclear Safeguards Systems Effectiveness," Proceedings of the 1978 Winter Simulation Conference, pp.899-906 (with Robin J. Miner and Dennis Engi).

"SNAP: A Tool for Nuclear Physical Protection System Modeling," Presented at the American Nuclear Society Winter Meeting, San Francisco, CA, November 11-16, 1979 (with Dennis Engi).

"Safeguards System Nuclear Facilities: A SNAP Application," Proceedings of the 1979 Winter Simulation Conference, San Diego, CA, December 1979, pp.187-192 (with Alonzo F. Hixson,III and Dennis Engi).

"A Combined SAFE/SNAP Approach to Safeguards Evaluation," Presented at the 1980 INMM Conference, Palm Beach, Florida, June 30-July 2, 1980 (with L.D. Chapman, Dennis Engi, and Joseph Polito).

"SNAP: A System Specific Network Simulation Language," ORSA/TIMS, October 1981 Meeting, Houston.

"Computer Aided Computer Simulation Modeling : Productivity Aids for Modelers," Presented at the Spring 1982 ORSA/TIMS meeting.

"An application of Deterministic Simulation to Support a Job Shop Finite-Load Scheduler," Presented at the ORSA/TIMS conference, San Francisco, May, 1984 (with E. Howell and B. Armstrong).

"Simulation with C," Presented at the Winter Simulation Conference, December, 1984 (with D. McFarland) .

"The Development of Operations Research Tools on Microcomputers," Presented at the Winter Simulation Conference, December, 1985 (with D. MacFarland).

"Simulation of an Injector Plunger Production Line," Presented at the Winter Simulation Conference, December, 1985 (with M. Dessouky and D. Gauthier).

"Simulation and Real Time Factory Control," Presented at the SME Conference, Chicago, June, 1986 (with Alan Pritsker and Steve Duket).

F. Hank Grant

"Artificial Intelligence: Advances in Sequencing and Scheduling," Proceedings of the 1987 IIE Integrated Systems Conference, pp. 177-182 (with D.G. MacFarland).

"Simulation in Manufacturing: Tools for Designing and Scheduling Production Systems," Presented at the National Academy of Engineering, Conference on the Design and Analysis of Integrated Manufacturing Systems, September, 1988.

"Simulation Technology for the Design and Scheduling of Material Handling and Storage Systems," Presented at NATO-ARW Advanced Information Technologies for Industrial Material Flow Systems, Grenoble, France, June 1988.

"Shop Floor Scheduling Using Simulation," Industrial Engineering, June 1988 (with C. Clapp).

"Automatic Adaptive Scheduling of Multiprocessor Cells," Presented at the 10th International Conference on Production Research, London, England, August, 1989 (with Shimon Nof).

"The User's Role in a Simulation Based Scheduling System," Presented at the Winter Simulation Conference, December, 1989 (with R. Lagoni).

"Simulation in Process Design" (Invited Paper), Process Design Symposium, Arizona State University, February 5-7, 1992.

"Enterprise Integration: A Tools Perspective" (Invited Paper), NATO ASI Series on Integration: Information and Collaboration Models, Pisa, Italy, July 1993, (with A. Jones and S. Nof).

"The Role of Quality Engineering Education," Presented at the Frontiers in Education, November 6-9, 1993

"Technology for Enterprise Integration: The Role of Computer Simulation," New Directions in Simulation for Manufacturing and Communications, Tokyo, Japan, August, 1994 (with A. Jones and J. Polito).

"Managing the Shop Floor," AAI Conference, Seattle, Washington, August 3-5, 1994.

"Goals and Objectives of Manufacturing Research at NSF," NSF Grantees Conference, 1994.

"Medical Devices Bureau EMI Roundtable - Hospital Management," Medical Devices Bureau, Health Canada, Montreal, 1994.

"Intelligent Material Handling Initiative," 17th Annual Conference of the AS/RS & AGVS Users Association, Kansas City, MO, 1994.

F. Hank Grant

“Meeting the Interference Requirements,” proceedings of the PCS 1900 in North America, Washington, DC, December 1995.

Session Chair on Biomedical EMC at IEEE 1995 International Symposium on Electro-magnetic Compatibility, Atlanta, GA, 1995.

“Pacemaker-Cellular Phone Interaction Research,” FDA/AAMI Medical Devices Conference, 1995.

“EMC Update,” CTIA's Wireless '95 Convention, New Orleans, LA, 1995.

“Oklahoma EMC Center - Focus for EMC Research,” Presentation to Reid Hundt, Chairman, FCC, 1995.

“The Oklahoma EMC Center,” Interview on CNN, 1995.

“Overview of the EMC Center and Hearing Aid Research,” Hearing Aid Compatibility Summit Meeting,” Washington, 1995.

“Status of the Oklahoma Center for Wireless EMC,” Electromagnetic Compatibility Challenge Forum 2, Dallas, TX, 1995.

“An Overview of the Center for Electromagnetic Compatibility at the University of Oklahoma,” 11th Annual International Conference on Electromagnetic Energy, Washington, D.C., 1996.

“Industrial Engineering at the University of Oklahoma,” Academic Coalition for Intelligent Manufacturing Systems; Board of Directors, 1996.

“EMC Research on Pacemaker Interaction,” CTIA Wireless '96 Conference, New Orleans, 1996.

“In-Vitro Study of the Electromagnetic Interaction Between Wireless Phones and Pacemakers,” Wireless Technology Research Symposium, September 30, 1996, Washington, DC. (with A. Ravindran, R.E. Schlegel, and S. Raman).

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